associated with continuous scanning and redrawing of the display (see paragraph [0002]). As further explained in paragraph [0021], the present invention uniquely exploits these properties by selectively reading display states or display state modifications made to the display by the external device.

Mikkelsen discloses a display with an insulative layer with electrical properties which have been selected so that the display can be addressed with a stylus and which minimizes the effects of stray triboelectrically generated charges, as well as a method of addressing such a display by depositing charges on a surface of the display, maintaining sufficient charges to effect an image change, and then removing the charges (see, e.g., the Abstract).

It is alleged in the Office Action that Mikkelsen discloses a method for digitizing data comprising: setting an element (200) of an electronic ink display to one of a plurality of display states (e.g. black or white, see col. 6, lines 9 – 11, and lines 32 – 34); modifying the display state of the element by writing to the display with an external device; and "reading (e.g. leaves a charge trail that activate the display state of the element) the element to determine if the display state has been modified (see col. 5, lines 58 – 60)."

It is not disputed that Mikkelsen discloses applying a charge at the surface of an insulative layer of a triboelectrically addressable electric paper by dragging a human finger or a stylus on the surface of the insulative layer, or that the display can be erased by using a "eraser" that applies a charge opposite to the triboelectric charge applied by the user to address the display. However, it is respectfully submitted that the cited

passages of Mikkelsen do not teach or suggest electronically reading the element to determine if the display state has been modified, as recited in claim 1.

Col. 5, lines 58 – 60 of Mikkelsen state that "[t]he action of dragging a finger on the transparent insulative layer 110 leaves a charge trail that activates the gyricon rotatable elements 200, causing them to rotate one portion toward the surface of the transparent insulative layer 110."

It is respectfully submitted that the disclosure of "leaving a charge trail" is not a teaching of "electronically reading an element to determine if the display state has been modified." Further, there is no teaching or suggestion in Mikkelsen of electronically reading the charge trail, or even an element of the charge trail, to determine if the display state has been modified.

In the Response to Arguments section of the Office Action, it is stated that "the new limitation 'electronically reading' is interpreted as the rotatable element is maintained in the same state either by controlling the conductive of the channel or conversely the resistivity of the channels (see col. 6, lines 5 – 11 and col. 9, lines 21 – 30)." Further, it is stated in the Office Action that "Mikkelsen clearly teaches electronically reading the element to determine if the display state has been modified (see col. 6, lines 5 – 11). The claimed 'electronically reading element' is so broad that is reads on the acts of image storage properties of the gyricon after the display state is changed (e.g. black) so that it can maintain the same state until it is disrupted by a subsequent opposite electric field."

It is respectfully submitted that reading "the rotatable element is maintained in the same state ..." as "electronically reading" is a misinterpretation of the accepted meaning

of the phrase "electronically reading." Even in its broadest construction, the act of "electronically reading" requires some electronic detection of the state of the element, particularly in light of the remaining portion of the step of claim 1, which recites "to determine if the display state has been modified." It is respectfully submitted that "maintaining a rotatable element in the same state" does not involve any detection, electronic or otherwise, of the state of the element and, therefore, is not a disclosure of "electronically reading" the element.

Further, it is noted that the Office Action does not address the argument that the cited passages of Mikkelsen do not disclose electronically reading the element to determined if the display state has been modified, as recited in claim 1. It is respectfully submitted that Mikkelsen simply does not teach the steps of setting an element of an electronic ink display, modifying the display state of the element, and electronically reading the element to determine if the display state has been modified.

In summary, for the reasons explained above, it is respectfully submitted that Mikkelsen does not teach or suggest the method for digitizing data as recited in claim 1.

Independent claim 14 also recites the step of "electronically reading the display element to determine if the display state has been modified." Thus, for the reasons discussed with respect to claim 1, it is respectfully submitted that claim 14 is also allowable over Mikkelsen.

Turning to independent claim 30, this claim recites a computer readable medium having computer executable instructions for performing a method for digitizing data written to an electronic ink display, and provides that the computer readable medium includes instructions operable to cause at least one programmable processor to:

set an element of the electronic ink display array to one of a plurality of persistent display states based on display data in memory;

wait in a power down or power off mode of operation for a signal to initiate a read operation;

read the element to determine the display state; and

store data for the display state read in the memory.

With respect to independent claim 30, the Office Action cites column 1, lines 52 – 53 of Mikkelsen, which state that "[t]hus, electric paper can be used in a computer system display screen or a television." The Office Action then apparently concludes that since "electric paper can be used in a computer system display screen," Mikkelsen teaches the computer readable medium having computer executable instructions as claimed in claim 30.

It is respectfully submitted that such a conclusion cannot be logically drawn from the teaching that "electric paper can be used in a computer system display screen" because, as discussed above, Mikkelsen does not teach or suggest electronically reading an element of an electronic ink display. Thus, Mikkelsen does not teach or suggest a computer readable medium including instructions operable to cause at least one programmable processor to read an element to determine the display state, and store the display state read in a memory.

Considering claim 3, this claim recites:

36. A method of operating an electronic ink display having bistable display elements, comprising

writing an image to the electronic ink display by setting the states of the bistable display element using data stored in a display memory;

entering a power down mode wherein the image persists on the display;

receiving modifications to the image on the electronic ink display from a user externally applying charge to selected bistable display elements with a handheld device, said modifications being visible on the display but not yet stored in the display memory;

reading the states of the bistable display elements in response to receiving a command to initiate a store procedure; and

updating the display memory with the states of the bistable display elements such that a modified image is stored in the display memory.

It is alleged in the Office Action that Mikkelsen teaches "reading the states of the bistable display elements in response to receiving a command to initiate a store procedure (e.g. detect the change of black or white state and store it in the insulative layer)."

However, for the reasons described above, it is respectfully submitted that Mikkelsen does not disclose "detecting the change of black or white state" as suggested, and, therefore, Mikkelsen does not disclose the method as recited in claim 36.

Claims 2, 3, 5, 6, 8, 11 – 13, 16, 18 – 21, 23 – 25 and 37 depend from either claim 1, claim 14 or claim 36 and, therefore, are allowable for at least the reasons provided in support of the allowability of the claims from which they depend. Additionally, many of the dependent claims are separately patentable.

For instance, claim 3 provides that reading the element to determine if the display state has been modified comprises detecting an electrical property related to the display state of the element. The Office Action again attempts to equate "leaves a

charge trail" with "reading the element to determine if the display state has been modified." Further, the Office Action attempts to equate the fact that Mikkelsen discloses that the charge trail activates "rotatable elements 200, causing them to rotate one portion toward the surface of the transparent insulative layer 110" (col. 5, lines 60 – 62) with "detecting an electrical property related to the display state of the element" (as recited in claim 3). It is respectfully submitted that disclosing that a charge causes a rotatable element to rotate is not the same as detecting an electrical property related to a display state of an element because "causing a rotation" is not the same as "detecting an electrical property."

In the Response to Arguments section of the Office Action, it is stated that the "examiner now interprets the new limitation 'electronically reading' as a 'rotatable maintained same state after its modified.'" And that "[t]he display state is detected if a sudden change in potential (see, col. 9, lines 54 – 67)."

Lines 54 – 67 of col. 9 state the following:

> This is why an excess of charge must be placed on the conductive island 350 so that, in the time it takes the new image to form, until time T.sub.2, there will still be sufficient charge to create a sufficient field to cause an image change. The time between T.sub.1 and T.sub.2 can be as large as 100 milliseconds.
>
> At time T.sub.2, because the image has changed there is no longer a need for a minimum level of charge to remain on the conductive islands 350 and the charge density continues to drop as charge continues to leak from the conductive islands 350. However, the sheet should not be handled or touched with a grounded object because sufficient charge still exists on the conductive islands 350 to cause an image change during a sudden change in potential on conductive island 350 such as by a sudden charge removal.

The cited passages merely describe the property of the sheet whereby the image may unintentionally change by handling or being touched with a grounded object. It is respectfully submitted that these passages do not disclose "detecting" anything, much less "detecting an electrical property related to the display state of the element," as recited.

Thus, Mikkelsen simply does not teach or suggest electrically reading the element to determine if the display state has been modified.

Claims 5, 6 and 8 depend from claim 3 and further recite aspects of the electrical property that is detected in reading the element. Thus, claims 5, 6 and 8 are also allowable over the Mikkelsen reference.

Likewise, claims 18 – 21 also further recite aspects of reading the element of the display to obtain a display state, and, are, therefore, further distinguishable from the Mikkelsen reference.

B. Rejection of Claims under 35 U.S.C. § 103

1. Mikkelsen in view of Perrone

Claims 15 and 26 – 28 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Mikkelsen in view of Perrone (U.S. Patent No. 6,603,881). This rejection is respectfully traversed.

The Perrone reference recites a personal digital notepad (PDN) device that includes an electronic stylus having an inking tip which allows a user to write on a piece of paper placed over the digitizing tablet (column 1, lines 46 – 54). As the writer writes on the paper, the digitizing table generates positional data representing the coordinates of the electronic stylus in relation to the digitizing table by detecting, for example, RF (radio frequency) emissions generated by the stylus as a user applies the stylus to the

surface of the tablet (column 1, lines 54 – 59). The Perrone reference does not disclose any technology beyond disclosing that "the writer writes on a piece of paper placed over a digitizing tablet," and, moreover, the reference is directed at reordering unconstrained handwriting data and for spatially organizing and formatting machine recognized transcription to allow a machine recognizer to generate and present a full and accurate transcription of unconstrained handwriting in its correct spatial context (column 2, lines 50 – 59).

It is respectfully submitted that the Mikkelsen reference and the Perrone reference are not properly combinable because they address different problems and are directed to different subject matter. More specifically, as discussed above, Mikkelsen discloses a display (electric paper) with an insulative layer with electrical properties which have been selected so that the display can be addressed with a stylus and which minimizes the effects of stray triboelectrically generated charges, as well as a method of addressing such a display by depositing charges on a surface of the display, maintaining sufficient charges to effect an image change, and then removing the charges (See the Abstract). As discussed above, Mikkelsen does not teach or suggest electronically reading or digitizing handwriting or other images. The Perrone reference is not concerned with, and does not even suggest the use of, the display (electric paper) of the Mikkelsen reference.

It is respectfully submitted that, there is absolutely nothing disclosed in either reference as to how the display of Mikkelsen could be used to generate the positional data used in the Perrone reference, so as to arrive at the method and systems recited in claims 15 and 26 – 28. The reason stated in the Office Action, viz., that "recorded

strokes in memory of Perrone can be stored and organized for recognition, and the corresponding recognition results can be accurately placed in the correct spatial context for subsequent display," merely paraphrases an objective of Perrone and is certainly not a reason to combine Perrone with Mikkelsen. A person of ordinary skill in the art would not only be unmotivated to combine Perrone with Mikkelsen, but would also be unable to make the combination because there is nothing disclosed in either reference as to how the display of Mikkelsen could generate the positional data used in the Perrone reference.

In the Response to Arguments section of the Office Action, it is stated that "[b]oth Mikkelsen and Perrone's devices are handheld device. Thus, it is proper to combining Mikkelsen and Perrone."

It is respectfully submitted that, even assuming that there are teachings in Mikkelsen and Perrone with respect to "handheld devices," merely because two devices are "handheld" does not make them combinable, and moreover, there is nothing disclosed in either reference as to how or why a person of ordinary skill in the art would modify the display of Mikkelsen with the Perrone reference given the positional data requirement of the Perrone reference for operability.

2. Mikkelsen in view of Ho

Claim 35 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Mikkelsen in view of Ho (U.S. Patent Application Publication No. 2005/0099672). This rejection is respectfully traversed.

It is respectfully submitted that Ho does not overcome the deficiencies of Mikkelsen discussed above and, therefore, claim 35 is allowable for at least the reasons provided in support of the allowability of claim 27.

3. Mikkelsen in view of Jacobson

Claims 4, 7, 9, 10, 17, 22, and 31 – 34 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Mikkelsen in view of Jacobson (U.S. Patent Application Publication No. 2005/0099672). This rejection is respectfully traversed.

The Jacobson reference recites sensing the state of an electrophoretic display (See the Abstract). More specifically, the relevant portion of the Jacobson reference relates to capsules containing electrophoretic particles, which are translated within the capsule using electrodes, thus changing the appearance of the capsule to a viewer (paragraph [0034]). Electrodes are used to apply a field to the capsule in order to sense its state (paragraph [0034]). For example, "if the particles have a much higher impedance than the dispersing fluid, then a voltage applied to the capsule will be more attenuated if the particles are nearer the electrodes than if they are not." Paragraph [0042]. Thus, the Jacobson reference describes sensing the state of an electrophoretic display that is dependent on the physical characteristics of electrophoretic particles.

The Mikkelsen reference discloses triboelectrically addressable electric paper having a gyricon substrate including gyricon rotatable elements disposed within the substrate (column 3, line 66 – column 4, line 14). Each gyricon rotatable element has two distinct portions, one black and the other white, and each portion has a distinctive electrical characteristic. Each gyricon rotatable element can be selectively rotated within its respective fluid –filled cavity by applying an electric field to present either the black portion or the white portion to an observer viewing the surface of the sheet. However, there is no discussion or indication that an electrical characteristic of the gyricon rotatable elements can be sensed by electrodes to determine the state of the rotatable elements

It is respectfully submitted that the Mikkelsen reference and the Jacobson reference are also not properly combinable because the two references are concerned with specific, non-combinable technologies. More particularly, there is no teaching or suggestion in the references, or otherwise, that the gyricon rotatable elements disclosed in the Mikkelsen reference and the capsules containing electrophoretic particles disclosed in the Jacobson reference are interchangeable for the purposes of either reference, and, therefore, there is no reason that a person of ordinary skill in the art would attempt to combine the references.

Further, the reason provided in the Office Action for combining the references is that "it would have obvious to one of ordinary skill in the art at the time the invention was made to have provided reading the element to determine if the display state has been modified comprises measuring the electrical current required to reset the element to a predetermined display state as taught by Jacobson to electrophoretic display of Mikkelsen it would provide the benefit of decaying the image quickly once the addressing voltage to the display is removed, thereby the update image can be viewed in sufficient time." It is respectfully submitted that: 1) Mikkelsen does not disclose an electrophoretic display, as suggested; 2) the "reason" presumes that the "reading electrophoretic display" technology of the Jacobson reference is technically compatible with the gyricon rotatable element display technology of the Mikkelsen reference; and 3) "decaying the image quickly once the addressing voltage to the display is removed, thereby the update image can be viewed in sufficient time" is not a reason for combining the references.

With respect to the first issue, it is pointed out that Mikkelsen discloses a gyricon rotatable element display and not an electrophoretic display. Therefore, it is respectfully submitted that the statement that "it would have been obvious ... to have provided the reading the element ... as taught by Jacobson to electrophoretic display of Mikkelsen ..." mischaracterizes the Mikkelsen reference.

With respect to the second issue, there is no indication in either of the references, or elsewhere in the cited art, that the gyricon rotatable element technology of the Jacobson reference and the "reading the electrophoretic particle" technology of the Mikkelsen reference are combinable or even compatible. To the extent that Official Notice is being taken of the combinability of the technologies, such Official Notice is respectfully traversed.

Finally, with respect to the third issue, it is respectfully submitted that the statement that "the update image can be viewed in sufficient time" does not logically follow the action of "decaying the image quickly once the addressing voltage to the display is removed" because the terms "sufficient time" and "quickly" are ambiguous in this statement, and the statement is not logical. Further, even if the terms were well defined and there was logic to the statement, the statement does not provide a reason for combining the references because the Mikkelsen reference teaches that the image storage properties of the gyricon act to hold the image on the display device even after the generating charge is removed (column 6, lines 7 – 11). Thus, the statement is clearly contrary to the teaching of the Mikkelsen reference.

In the Response to Arguments section of the Office Action, the following is stated:

"In regard of the first arguments, both Mikkelsen and Jacobson teach encapsulated bistable state. In regard of the second argument, since both references teach about encapsulated bistable state [0006] in Jacobson and col. 6, lines 5 – 11 in Mikkelsen. Thus, it would have been obvious to combine both references. In regard of the third argument, it's logical to combine Mikkelsen and Jacobson because decaying the image quickly once the addressing voltage to the display is removed for charging the bistable state from white to black or from black to white."

It is respectfully submitted that, again, Mikkelsen and Jacobson relate to technologies (gyricon rotatable elements vs. electrophoretic particles) that are not known to be combinable or even compatible. Further, it is respectfully submitted that the references teach away from each other in that Mikkelsen teaches that the gyricon properties act to hold the image on the display device even after the generating charge is removed (col. 6, lines 7 – 11), while Jacobson teaches decaying the image quickly once the addressing voltage is removed (paragraph [0006]).

4. Mikkelsen in view of Perrone and further in view of Jacobson

Claim 29 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Mikkelsen in view of Perrone as applied to claim 27, and further in view of Jacobson. This rejection is respectfully traversed.

For the reasons stated above with respect to the combinability of the Perrone and Jacobson reference individually with the Mikkelsen reference, it is respectfully submitted that the Perrone and Jacobson references are also not jointly combinable with the Mikkelsen reference.

5. Mikkelsen in view of Parker

Claims 38 and 39 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Mikkelsen in view of Parker (U.S. Patent No. 6,836,432). This rejection is respectfully traversed.

It is respectfully submitted that Parker does not overcome the deficiencies of Mikkelsen discussed above. Therefore, claims 38 and 39 are allowable for at least the reasons provided in support of the allowability of claim 36.

It is respectfully submitted that the present application is now in condition for allowance.

Respectfully submitted,

Date: November 9, 2007

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